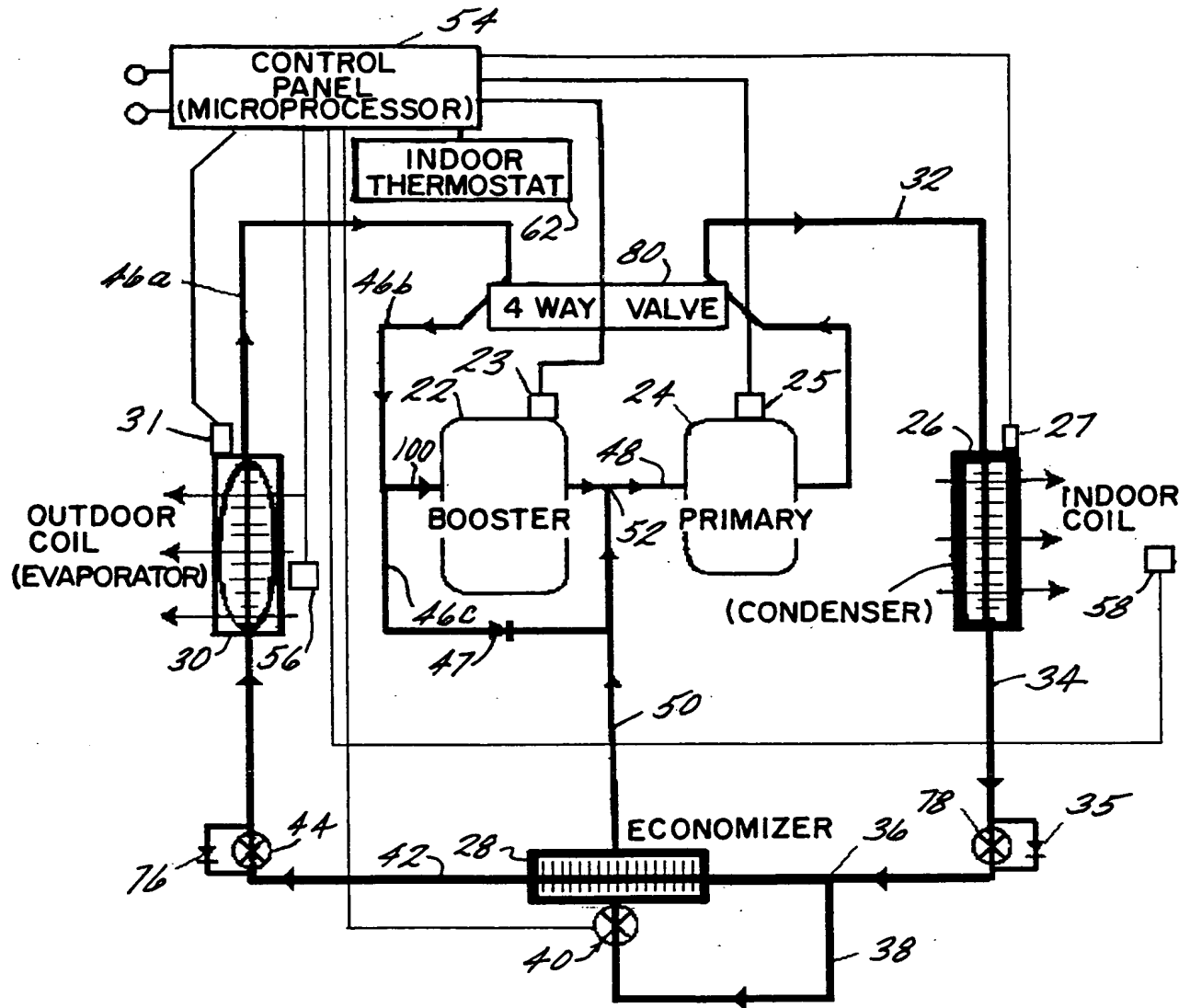
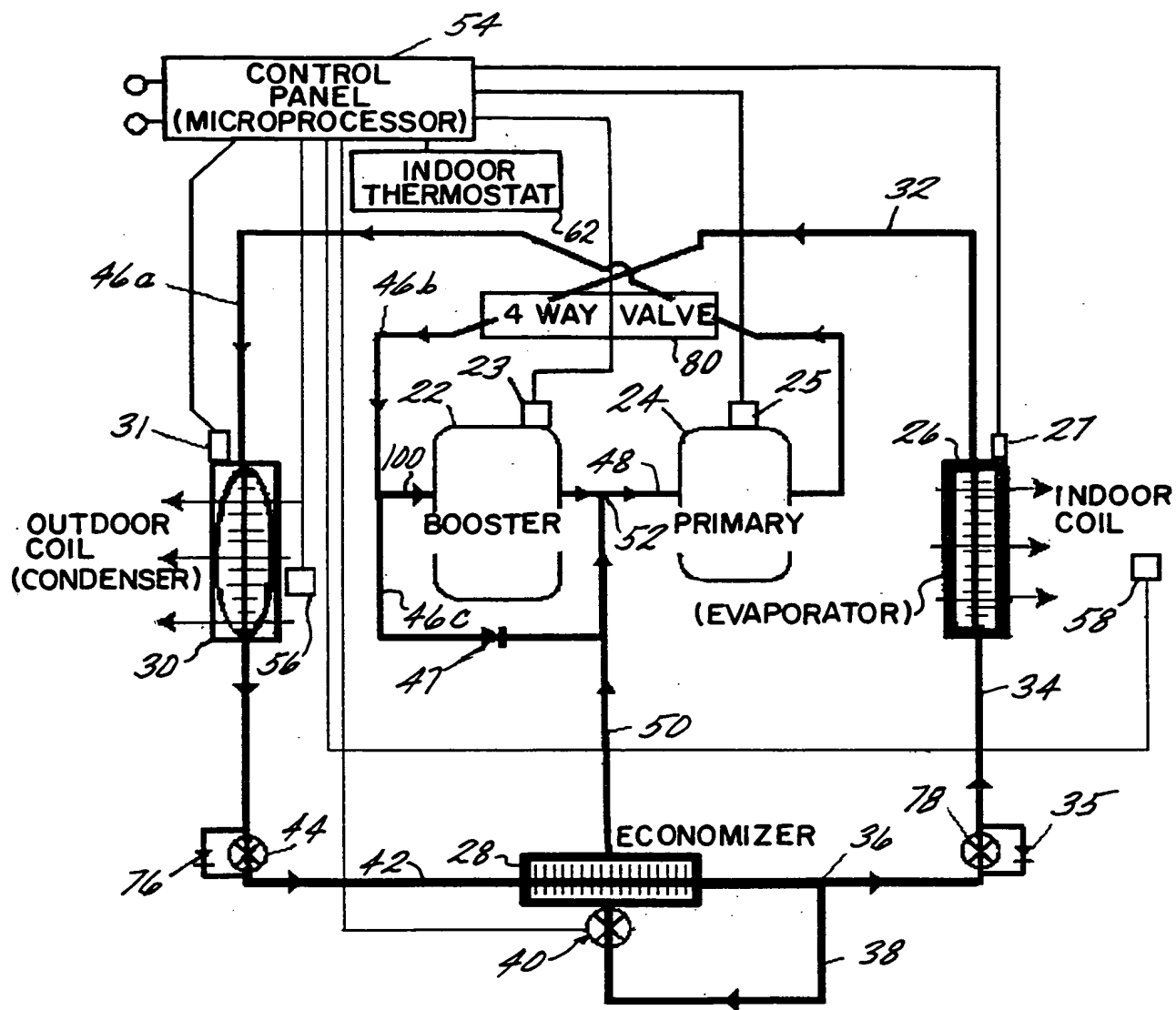


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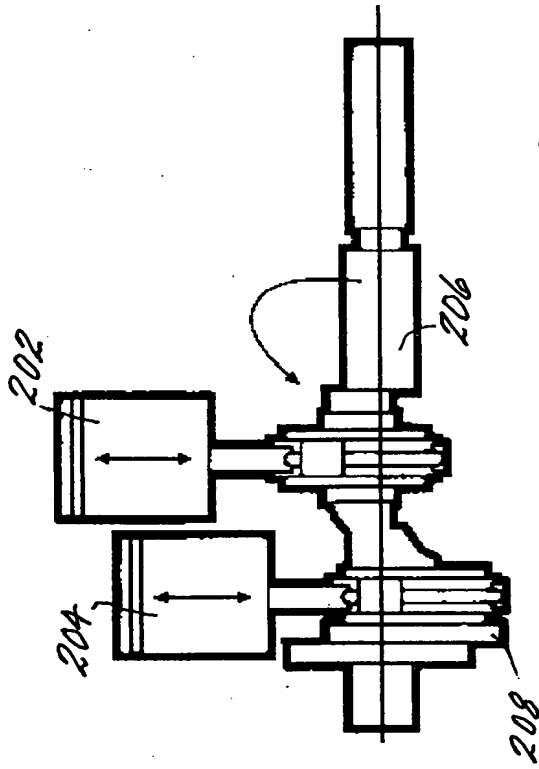
**HEAT PUMP WITH BOOSTER COMPRESSOR**  
(HEATING FLOW PATH SHOWN)

FIG. 1



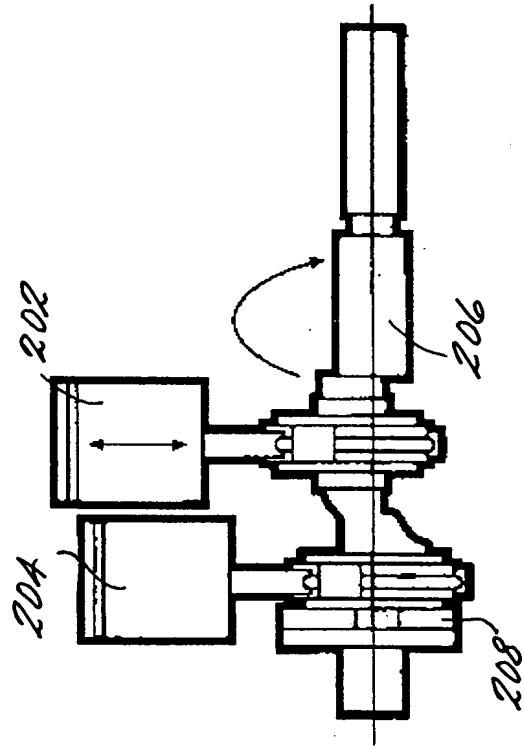
**HEAT PUMP WITH BOOSTER COMPRESSOR**  
(COOLING FLOW PATH SHOWN)

FIG. 2



(A) Both pistons operate when the compressor runs forward.

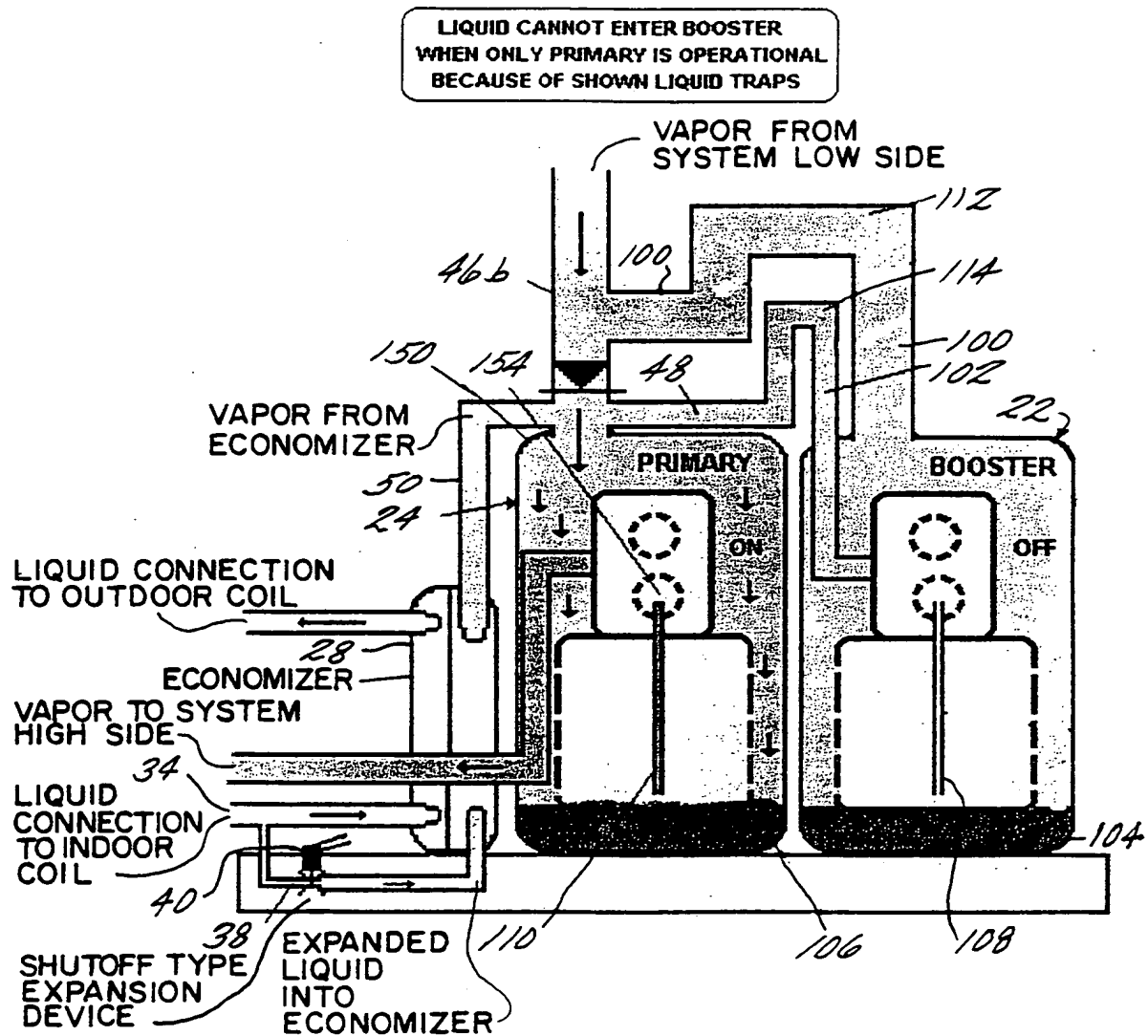
FIG. 3(A)



(B) Reverse the motor, and just one piston operates, as the crankshaft lobe repositions itself on the center axis of the shaft.

FIG. 3(B)

# COMPRESSION MODULE FOR BOOSTED AIR SOURCE HEATING

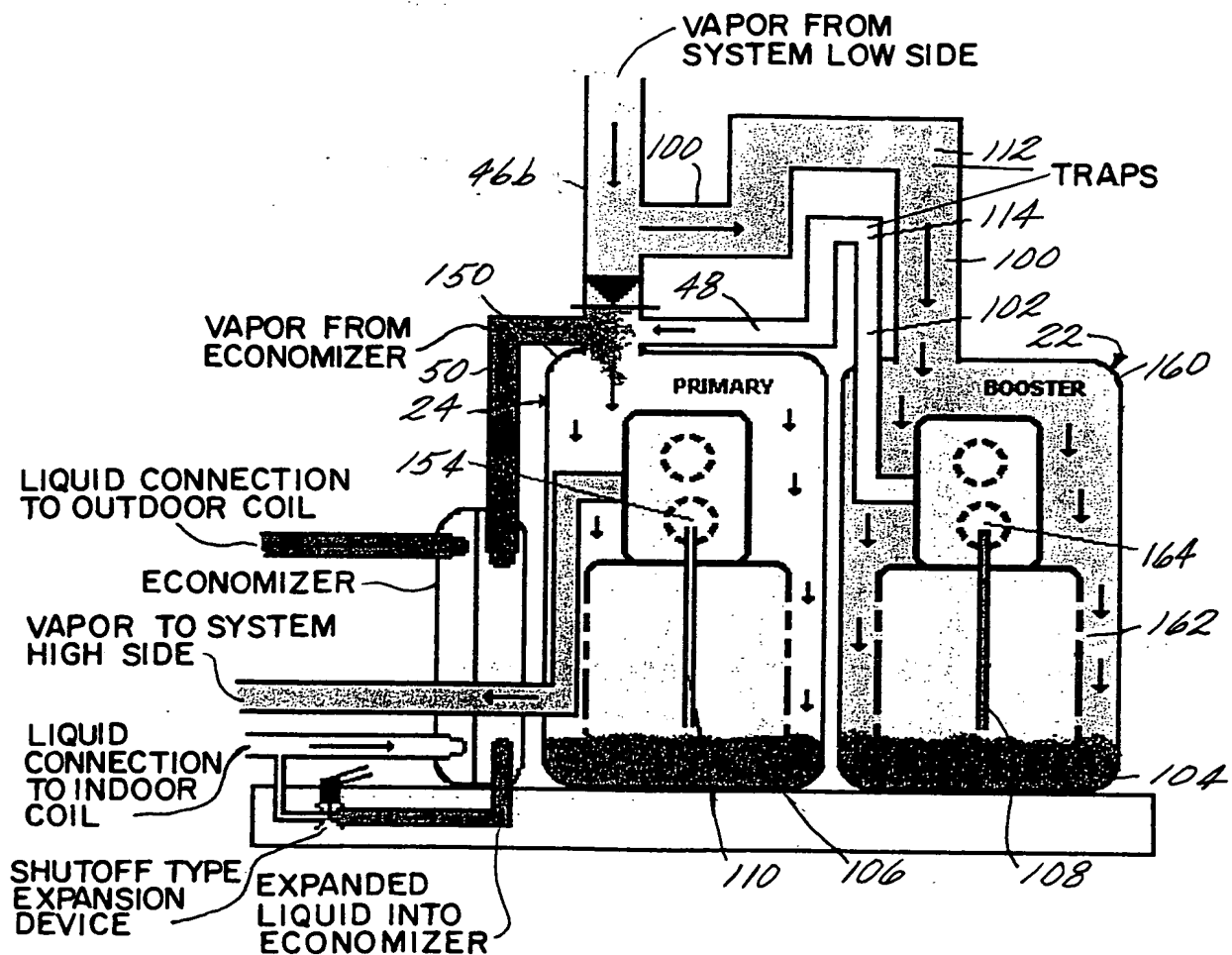


LOW LEVEL HEATING DEPICTED  
ONLY PRIMARY COMPRESSOR OPERATIONAL

LUBRICANT MANAGEMENT

FIG. 4

# COMPRESSION MODULE FOR BOOSTED AIR SOURCE HEATING

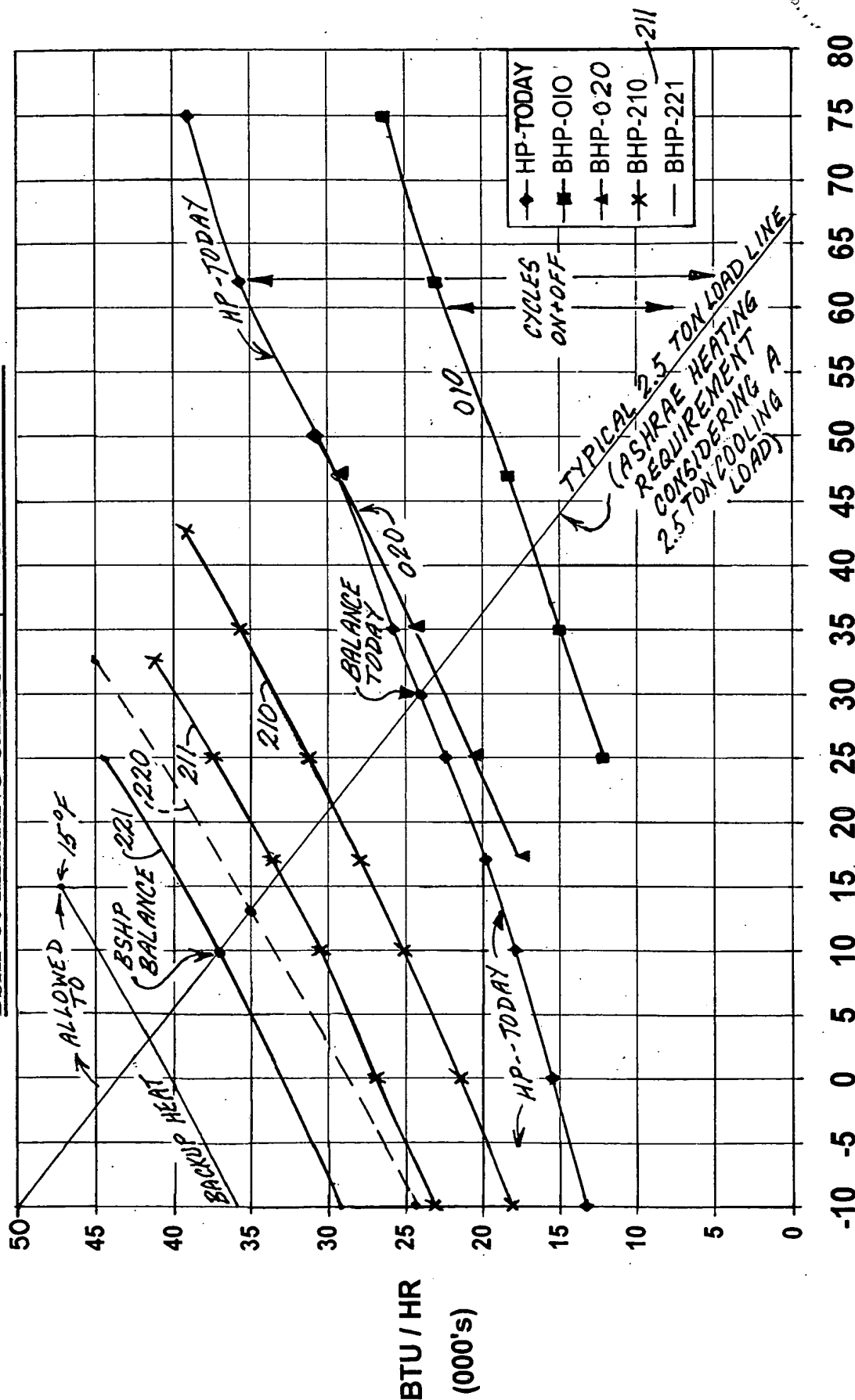


HIGH HEATING DEPICTED  
BOTH COMPRESSORS OPERATIONAL

LUBRICANT MANAGEMENT

FIG. 5

# BSHP-30 HEATING CAPACITY, BTU'S PER HOUR



OUTDOORS, F°

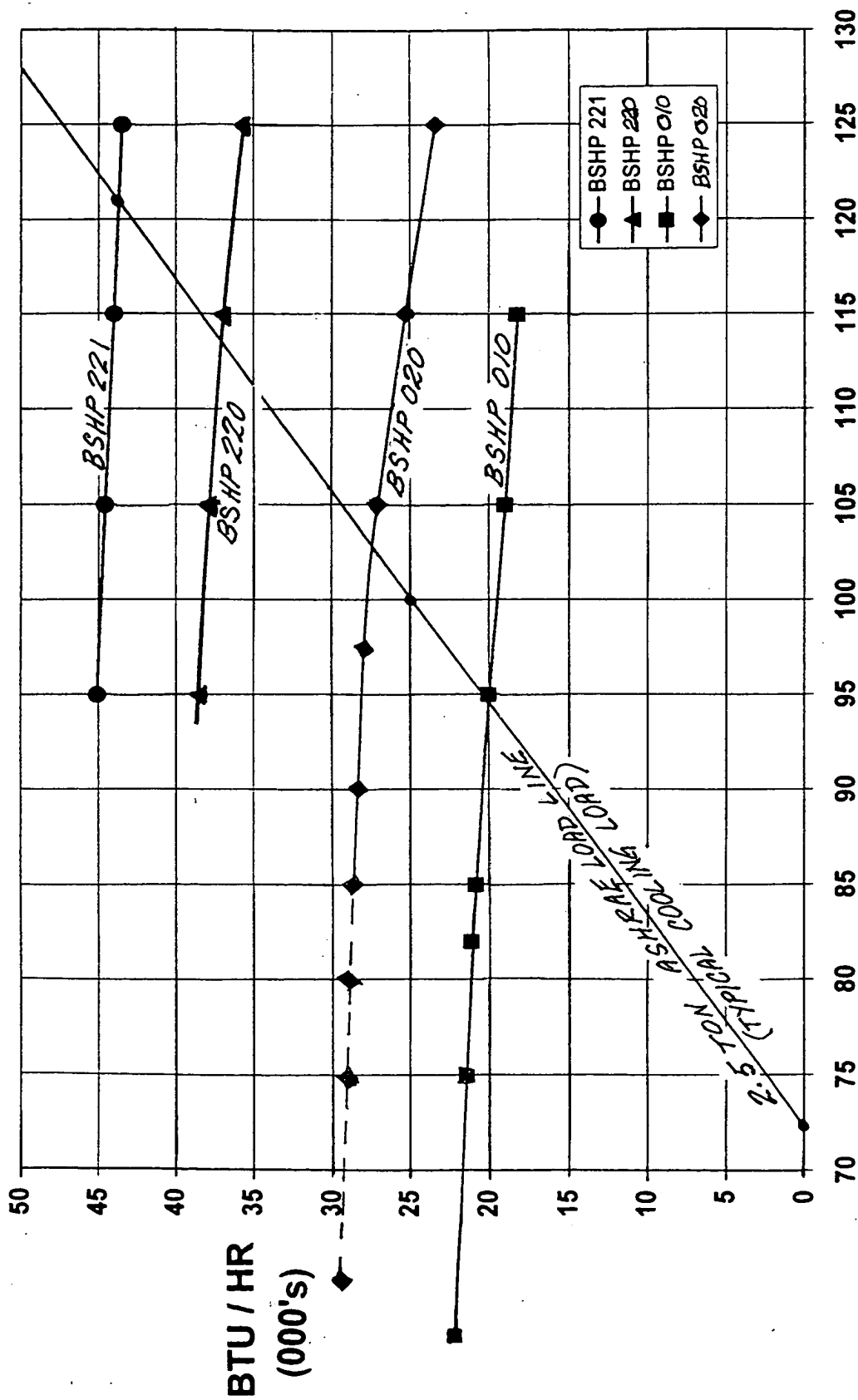
FIG. 6

# **BOOSTED AIR SOURCE HEAT PUMP TYPICAL OPERATING SEQUENCE**

THE CHART SHOWN BELOW SHOWS "TYPICALLY" ALLOWED CAPACITY STEPS FOR VARIOUS									
"TYPICAL" OUTDOOR AMBIENT TEMPERATURE RANGES.									
ALL ALLOWED STEPS	UP TO 15°F	ABOVE 15° TO 25°F	ABOVE 25° TO 33°F	ABOVE 33° TO 43°F	ABOVE 43° TO 50°F	ABOVE 50° TO 75°F			
RESISTANCE							NOT ALLOWED	NOT ALLOWED	NOT ALLOWED
COMB. 2-2-1							NOT ALLOWED	NOT ALLOWED	NOT ALLOWED
COMB. 2-1-1							NOT ALLOWED	NOT ALLOWED	NOT ALLOWED
COMB. 2-1-0	NOT ALLOWED						NOT ALLOWED	NOT ALLOWED	NOT ALLOWED
COMB. 0-2-0	NOT ALLOWED	NOT ALLOWED					NOT ALLOWED	NOT ALLOWED	NOT ALLOWED
COMB. 0-1-0	NOT ALLOWED	NOT ALLOWED	NOT ALLOWED				NOT ALLOWED	NOT ALLOWED	NOT ALLOWED
OFF									
ONLY BLACKENED IN BOXES ARE ALLOWED FOR THE SHOWN TEMPERATURE RANGES.									
0-1-0 MEANS 1 PRIMARY CYLINDER; 0-2-0 MEANS BOTH PRIMARY CYLINDERS; 2-1-0 MEANS									
2 BOOSTER CYLS., 1 PRIMARY CYL. & NO ECONOMIZER; 2-1-1 ADDS THE ECONOMIZER; 2-2-1									
ADDS THE SECOND PRIMARY CYLINDER.									

FIG. 7

# BSHP-30 COOLING CAPACITY, BTU'S PER HOUR



OUTDOORS, F°

FIG. 8

## COOLING CONDITIONS

### BOOSTED AIR SOURCE HEAT PUMP TYPICAL OPERATING SEQUENCE

THE CHART SHOWN BELOW SHOWS "TYPICALLY" ALLOWED CAPACITY STEP VARIOUS "TYPICAL" OUTDOOR AMBIENT TEMPERATURE RANGES.

ALL ALLOWED STEPS	ABOVE 105° TO 125°F	ABOVE 85° TO 105°F	60°F. TO 85°F
	(MANUAL)		
COMB. 2-2-1		NOT ALLOWED	NOT ALLOWED
		(MANUAL)	
COMB. 2-2-0			NOT ALLOWED
			(MANUAL)
COMB. 0-2-0			
COMB. 0-1-0	NOT ALLOWED		
OFF			

ONLY BLACKENED IN BOXES ARE ALLOWED FOR THE SHOWN TEMPERATURE RANGES.

0-1-0 MEANS 1 PRIMARY CYLINDER; 0-2-0 MEANS BOTH PRIMARY CYLINDERS; 2-2-0 MEANS 2 BOOSTER CYLS., 2 PRIMARY CYL. & NO ECONOMIZER; 2-2-1 ADDS THE ECONOMIZER.

(MANUAL) MEANS THAT THE OPERATING STEP SHOWN MUST BE CALLED MANUALLY FOR THE SHOWN OPERATING TEMPERATURE RANGE.

*FIG. 9*